1: Cell 1990 Feb 9;60(3):461-72

A novel octamer binding transcription factor is differentially expressed in mouse embryonic cells.

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We have identified a novel octamer binding factor (Oct-3) in P19 embryonal carcinoma cells. Oct-3, which recognizes the typical octamer motif (ATTTGCAT) as well as the AT-rich sequence TTAAAATTCA, is present in P19 stem cells but disappears when the cells are induced to differentiate by retinoic acid (RA). Cloned cDNA corresponding to Oct-3 encodes a protein of 377 amino acids. Oct-3 has a conserved POU domain, but the remaining part is distinct from other POU domain-containing proteins such as Oct-1 and Oct-2. mRNA of 1.5 kb coding for Oct-3 is abundant in P19 stem cells but is dramatically repressed during RA-induced differentiation. Repression of the 1.5 kb mRNA is rapid and specific to RA. In mouse, oct-3 mRNA is undetectable in all the adult organs examined. The N-terminal proline-rich region of Oct-3, when fused to the DNA binding domain of c-Jun, functions as a transcriptional activating domain. We suggest that Oct-3 is a novel octamer binding transcription factor that is developmentally regulated during mouse embryogenesis.

PMID: 1967980 [PubMed - indexed for MEDLINE]

1: Nature 1990 Jun 21;345(6277):686-92 Related Articles, Protein, Books, LinkOut

A POU-domain transcription factor in early stem cells and germ cells of the mammalian embryo.

Rosner MH, Vigano MA, Ozato K, Timmons PM, Poirier F, Rigby PW, Staudt LM.

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The murine oct-3 gene encodes a transcription factor containing a POU-specific domain and a homeodomain. In marked contrast to other homeodomain-encoding genes, oct-3 is expressed in the totipotent and pluripotent stem cells of the pregastrulation embryo and is down-regulated during differentiation to endoderm and mesoderm, suggesting that it has a role in early development. The oct-3 gene is also expressed in primordial germ cells and in the female germ line.

PMID: 1972777 [PubMed - indexed for MEDLINE]

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